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FIRE INSURANCE RATES: PROBLEMS OF COÖPERATION, CLASSIFICATION, REGULATION

SUMMARY

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One great problem with two phases has continuously engaged attention and challenged solution throughout the recent history of fire insurance in the United States. The essentials of the many unsettled controversies in this field of indemnity are never reached without a consideration of this paramount factor — rates and premiums. In all forms of property insurance equity of rates has attained preëminence as a desideratum, but owing to the magnitude of the business and the extreme difficulty of realization this is nowhere more clearly evidenced than in fire insurance. The technical difficulties of estimating fire hazard, the diversity of risks, and the almost inevitable destruction of the evidence of the cause of loss have combined to complicate the solution.

The modern development of every business has given rise to a price-fixing system. This may be stimulated, modified and controlled by various factors such as competition, the principle of "what the traffic will bear," possibility of substitution, cost, monopoly value; but owing to the long-recognized mutual character of insurance — an institution where many combine to indemnify the unfortunate few — cost is admitted to be the basis of rates.[1] With this principle accepted, the only issue has been one of means — how should the cost principle be applied? This question has acquired two equally important aspects, namely, (1) by what agency shall rates be kept commensurate with costs? (2) by what theory or system can an equitable adjustment of premiums and losses be made? In other words, the first perplexity is one of agency, the second problem one of method.

THE MEDIUM

An appreciation of this aspect of the question requires a visualization of the stages of development of the rate-fixing process in fire insurance.[2] Comparatively early underwriters discriminated between buildings on the basis of their liability to destruction by fire, but the consequent classifications were naturally very crude. One grouping merely designated three classes as "common," "hazardous" and "extra-hazardous." Every company's rates suited its convenience; at first their adequacy was absolutely indeterminable until an account was drawn up of the business transacted, and those charging inadequate rates usually maintained a precarious existence until some conflagration terminated their activities. Property owners in vain sought the ideal combination of safety and cheapness. The early three-fold division was but the beginning of rating progress, however, and subsequent systems were modified by the personal judgment of inspectors. A judgment system of rating became prevalent which, while it distinguished between different features of hazard, had many defects. No two inspectors had the same judgment, no two made the same allowance for the same features, the insured could not be shown how his rate was arrived at, legislators could not be convinced of the honesty of the underwriters, and the companies themselves could not be sure that their guarantees were sold at the proper prices.[1] Therefore underwriters replaced individual judgment with combined judgment by establishing in conferences schedules of additions for defects and allowances for good features. Such schedules insured that all inspectors would consider the same features and would make the same deductions from and additions to the rate therefor.[2]

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[1] See, e. g., Gephart, "Fire Insurance Rates and State Regulation," Quarterly Journal of Economics, May, 1914.

[2] For a history of fire insurance rate-making see A. F. Dean, "Classified Experience," Chicago, 1912 (pamphlet); G. T. Forbush, "Notes on Rates and Rate-making," a lecture before the Insurance Library Association of Boston, 1912.

The maintenance of individual company corps of inspectors was expensive. Competition, also, developed into desperate rate wars. Coöperation between companies was practically non-existent and each enticed business by decreasing rates on the one hand and increasing commissions to agents on the other.[3] This increased expenses and decreased income so that the existence of all companies was jeopardized and many failed. For two reasons, therefore, a reform was necessary, and associations of companies and their agents were formed, now variously designated "underwriters' associations," "tariff associations," "boards," etc. Most of these bodies establish rates on risks situated within a given territory, a service which the National Board of Fire Underwriters at one time unsuccessfully attempted to accomplish for the entire country.[1] Sectional and local associations, however, struggled along until coöperative rating was attained.

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[1] S. S. Huebner, Property Insurance, p. 187.

[2] For enumeration of advantages of schedule rating see Standard Universal Schedule, by F. C. Moore, Continental Insurance Co., N. Y., 1902, p. 8.

[3] F. C. Oviatt, "Historical Study of Fire Insurance in the United States" in Annals of American Academy, September, 1905.

These coöperative bodies at the present time may be divided into three classes,[2] (1) the very numerous local associations, which govern rates, commissions and brokerage charges;[3] (2) the sectional bodies which restrict commissions and to some extent supervise rates;[4] and (3) the national associations,[5] which are now rather indirectly concerned with rates and whose principal services are educational and technical in character. If we omit the minor detail of extent of jurisdiction, we may make a two-fold classification of (1) educational and technical associations and (2) commission-regulating, rate-making bodies. With the former we are not here concerned. Among the latter were some composed of company representatives, some of special agents, some of local agents and brokers. All, however, constituted merely an effort to do coöperatively what had previously been accomplished individually. They were born of competition in the same sense that the railroad traffic associations, the steel pools, the steamship pools, and farmers' coöperative elevators were brought into being by competition, which all were designed to restrict and limit.

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[1] G. T. Forbush, "Notes on Rates and Rate-making," a lecture before the Insurance Library Association of Boston, 1912.

[2] See the author's Fire Underwriters' Associations in the United States, The Chronicle Co., N. Y., 1916, pp. 3–10.

[3] Ibid., pp. 10–17.

[5] Ibid., pp. 18–24.

[4] Ibid., pp. 24–30.

Instead of thousands of inspectors individually acting as expert buyers for separate companies, hundreds were employed by these associations to make a common rate for all companies on each risk in a given territory. These rates were distributed to agents operating in the territory who were members of the association and nearly all companies charged identical rates. Stamping departments, through which all policies had to pass, were established to prevent secret price-cutting and promote standardization. Attention was also called to the commission evil; the leading principle of the Western Union, an association of company officials, was originally a flat 15 per cent commission.

These bodies were necessities of the times for the prevention of rate-cutting and excessive expense and the enforcement of coöperation. They had and still have certain very definite economic functions:[1] the promotion of economy, standardization, and miscellaneous services difficult to classify. Economy in rate-making was attained by the reduction of inspection labor and expense and by the attendant specialization and division of labor. Commissions were restricted through associations of company representatives and common surveillance of legislation cost less than individual. One legal corps could do the work for all companies. In the field of standardization the rating system was improved by the development of schedules, the establishment of organizations to apply the schedules, the elimination of rate-cutting, and some more or less unsuccessful attempts at classification of loss statistics. Short term rates were standardized as well as policy clauses and endorsements. Objectionable practices were eliminated by the prohibition of commission rebating and the expulsion of undesirable members. Mutual counsel and assistance of participants in the business and the prevention of and protection against fire were also important attainments.

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[1] Robert Riegel, Fire Underwriters' Associations in the United States, pp 30–36.

Organizations of underwriters were formerly and are under the present system as much economic necessities as railroad traffic associations or steamship pools. They were necessary to terminate rate-wars and to insure against future endangering of company solvency by struggles for business at inadequate, profitless rates. Even the insured derived no benefit from these latter. In no business is a price reduction at the expense of quality an undiluted advantage and every inadequate insurance rate reduced the stability of the company and the value of its promise to pay indemnity. The small property owner, indeed, suffered a reduction in his prospective indemnity's quality without enjoying any corresponding cheapness of rate, for the large insurer, in an era of unstable rates, is always the one able to command the reductions. The history of the railroad business is a classic example of this fact. Competition in rates results in discrimination; the tariff associations were designed to promulgate and enforce uniform charges.

In spite of the legitimacy of the associations' objects, the advantages of which have long been recognized in foreign countries, abuses crept into the system, unrestrained by intelligent regulation.[1] The opponents of the system alleged and in some instances proved (1) an absence of classified statistics to support the rates made, (2) discrimination, and (3) arbitrary control of the licensing of brokers. A more detailed division of these complaints will indicate their significance.

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[1] S Deutschberger, Report on Examination of New York Fire Insurance Exchange, New York Insurance Dept, July 21, 1913; Robert Riegel, Fire Underwriters' Associations in the United States, pp. 36–52.

It was contended that rates for various classes of risks should be based on the losses incurred on such classes and that it was insufficient rate justification for underwriters to exhibit their moderate underwriting profit on the business as a whole. Most mercantile and manufacturing risks are rated by schedules which start from a basis rate regarding which the questions were asked: "Why is one risk rated twenty times as much as another? Why is the basis rate on grain elevators $1.50 and on iron foundries $1.00, machine shop schedule $1.25, tin can factory $1.59, flour mill $1.75?" It was desired that the companies produce figures showing premiums received and losses incurred on every class of business. Experts who made fire insurance rates admitted its impossibility; eminent makers of schedules contended that this was a hopeless and unprofitable task. The reply to the public's demands was that if exorbitant profits were not earned as a whole and if proper relations were maintained between all risks of the same class equity must result.[1] In fact, attempts to collect statistics from companies in the past had been practically failures; they refused to surrender the results of their writings, fearing that the data would be competitively used by rivals in the future. It was impossible, however, to convince the representatives of the people that rates could be justified in any manner other than by statistical representation of results, and the rate-making associations came to be considered as conspiracies to bind the public with arbitrary and unjust rates.[1] Further developments of this issue are fully discussed in the second portion of this article.

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[1] For example see Gephart, "Fire Insurance Rates and State Regulation," Quarterly Journal of Economics, May, 1914.

While the above complaint touched a fundamental aspect of fire insurance rating the question of discrimination was more easily grasped by the popular mind and assumed primary importance.[2] Discrimination took various forms; one was unequal treatment of classes of risks. The rate-making associations could not show reliable statistics as a basis for their charges on different kinds of properties, altho if the basis rate for any particular class is exorbitant every building within that class suffers an injustice, and an inadequate basis rate confers upon the class obtaining it a benefit at the expense of others. If statistics cannot be produced the complainant has as much proof of the inequity of rates as the defender has of their justice, that is to say, none at all. Furthermore, of all classes of risks, dwellings were with some cause considered the worst treated. These fall in a large class of properties which take " minimum " rates, *i. e.*, rates which apply to any and all risks (not rated specifically) of a class of the same general description as regards physical hazard. As in other cases, admittedly no sufficient proof could be produced to justify the charges made. These risks were even designated " preferred risks " because considered more profitable to the companies, each of which insisted that brokers furnish it with its due proportion of this class of business. Larger commissions were awarded the agent for these risks than for others and the more hazardous mercantile and manufacturing risks were not acceptable unless accompanied by a large amount of the "preferred" business.[1] In some cases no codification of the rules for rating existed, which entailed the consequence that the clients of some brokers who through long experience or otherwise had acquired a considerable knowledge of the rules were favored, while other brokers could not secure equal treatment for their customers because of ignorance. Risks equipped with automatic sprinklers were not given the benefit of due reductions, and in one large city it was shown that their rates were not reduced until factory-mutual competition made this imperative, and then risks threatened with competition and already insured with mutual companies were first considered. A sprinkler schedule was promulgated, concededly devised to meet competition.[1]

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[1] Report of Superintendent of Insurance of Missouri, 1912. Report of Superintendent of Insurance of Illinois on Fire Insurance Rates, 1915.

[2] A F. Dean, Fire Rating as a Science, p 7, " Our failure to make a profit does not concern the public, but our failure to maintain reasonably true rate relations offends the sense of relation which is instinctively the basis of every reasoning process. Even low rates that are inequitable are an offence to common intelligence "

Discrimination between localities also manifested itself. No relation or harmony could be shown between the various local schedules used and different charges were made in different places for the same defect.[2] In two sections of the country schedules based on entirely different theories were in use; the Dean or Analytic Schedule in the middle West, and the Universal Mercantile Schedule in the East. In the larger cities of New England and the Middle States the latter was not even applied in its original form but was used with modifications. Even there it was limited to certain classes of risks. Considerable controversy arose over the question of whether urban fire protection facilities received due credit and whether city risks were correctly charged in comparison with suburban and rural risks. The report of the Illinois Commission to investigate fire insurance stated that "It is very hard to escape the conclusion that owners of dwellings in Chicago are grossly overcharged." In this state at one time the rate on frame dwellings outside of Chicago was forty cents with no charge added for exposure, while dwellings in Chicago, with water supply and fire department, paid fifty cents and a charge for exposure in addition.[1] An aftermath of the San Francisco conflagration was a general rate advance to recoup the enormous losses incurred. In some localities, however, collection of the advanced rates for any length of time was impossible and the attempt was abandoned. The increased rates persisted in some cities, however, and were collected for several years after their removal elsewhere. In one city, tho the advance was officially abolished in 1910, the higher rates were still in force in 1913 on a number of classes not considered entitled to favorable consideration, altho no records existed to show why.[2]

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[1] Report of Superintendent of Insurance, Missouri, 1912; Examination of New York Fire Insurance Exchange, 1913; Report of New York Investigating Committee, 1911; Report of Illinois Fire Insurance Commission, 1911.

[2] A. F. Dean, Fire Rating as a Science, p 53 et seq.

Some discrimination existed between different kinds of policies. Certain classes of risks might be insured, for example, for five years at three times the annual rate; others could not. The existence of these " term rates " was justified by the saving in expense by writing insurance for a number of years at one time, the interest which could be earned on the larger premium collected immediately, the " tieing up " of the business and the advantage of having on hand the larger premium, whether earned or not, in case of loss; but none of these considerations furnishes any basis for allowing term rates to some classes and denying them to others. The distinction was said to be made " without any definite guiding principle or standard." [3]

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[1] Report of Illinois Fire Insurance Commission, January 4, 1911, p 57.

[2] Report on Examination of New York Fire Insurance Exchange, New York Insurance Dept, 1913, pp. 7, 69.

[3] Report of Illinois Fire Insurance Commission, January, 1911, p. 61 A F. Dean, " Standardization," 42d Annual Meeting, Fire Underwriters' Association of the Northwest, p. 94.

Finally, the most obnoxious form of discrimination, that between individuals, was complained of, altho no evidence was presented of its very extensive practice. Local agents representing many companies had some preferred risks and some which were undesirable at the price offered. The agent, however, mixed the good with the bad and offered them in bulk. The companies were compelled to take all or none of the risks, and through careful mixing and competition the agent usually succeeded in placing his risks. The existence of the preferred induced the acceptance of the hazardous risks at inadequate premiums. In addition large property-owning corporations sometimes succeeded in forcing the companies to reduce rates in order to obtain the considerable amount of business offered.[1]

Another evil complained of was the arbitrary regulation of agents and brokers. So universal was membership in some associations that a brokers' success was dependent upon it. His application was passed upon by a committee appointed for the purpose, with the guidance of a set of rules. The rules, however, in some cases were merely perfunctory and deviations from them were common. Favoritism was practised (1) to serve the personal interests of one or more members, (2) by reason of the recommendation of some prominent company official, (3) because of the control of a large amount of business or (4) for political reasons.[2]

As a result of these palpable abuses of the system, the underwriters' associations came to be considered as wholly evil pools and combinations detrimental to public welfare,[1] whereas they did have many legitimate economic functions. Even very early there had been some actions at common law [2] for their dissolution on the ground that they constituted a restraint of trade. But since the common law doctrine was that contracts in unreasonable restraint of trade were simply void and unenforceable, not giving rise to a criminal or civil action, no redress was available. In suits on the ground of public policy, proof was required that the restraint exercised was unreasonable and affected the public interest or was employed with respect to an article of necessity. In several cases it was held that insurance is affected with a public interest, but very generally it was not considered a necessity of life. The courts drew a distinction between the associations themselves and their acts and prevented certain acts while not holding the associations *per se* illegal.

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[1] L. W. Zartman, "Discrimination and Coöperation in Fire Insurance," Yale Readings in Insurance, Chap. 11; Report of the Fire Insurance Investigating Committee of North Carolina, 1915, pp. 4, 8; Report of Illinois Fire Insurance Commission, 1911, pp. 21, 53; Report on Examination of New York Fire Insurance Exchange, 1913, p. 11; Report of New York Investigating Committee, 1911, pp. 63, 93.

[2] Report on Examination of New York Fire Insurance Exchange, 1913, pp. 11, 113, 114.

In the general antipathy to " trusts " which arose, however, the fire underwriters' associations could not fail to be included. The old decision in *Paul v. Virginia* prevented the federal Sherman Act from being applied to such associations or boards and vested control of insurance in the several states; but many similar state acts were passed. Their usual wording prohibited contracts, agreements, etc., in restraint of " trade," " commerce," " business," " dealings in commodities," " products," etc., and when boards of underwriters were prosecuted under such acts the principal controversy was whether such general terms included insurance. The conclusion of the courts commonly was that they did not. In several cases insurance was held not to be a " trade " or " commodity." It was held, however, to be a " business " and this word was afterward inserted in one statute for this reason. In summary, such acts were too general in wording to reach the business of insurance, and the ruling of *Paul v. Virginia* that insurance was not commerce here stood the companies in good stead.[1] It should be understood that all states did not progress with equal speed along the lines indicated and some were still attempting to regulate under the common law when others relied upon general anti-trust statutes. The latter still exist, of course, and are the basis for attempted regulation in some states today.

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[1] For a history of the development of fire insurance regulation see Robert Riegel, " Commonwealth v. Coöperation," Rough Notes, April 22, 1915.

[2] For the status of underwriters' associations under the common law see the author's Fire Underwriters' Associations in the United States, pp. 52–69. Citations are there given of all the leading cases on this phase of regulation.

The inefficacy of the anti-trust statutes induced the passage of modifications which included a few more nouns such as " mechanism," " convenience," " repair," " product of mining," etc., to enlarge the laws' scope and specifically enumerated also " the price or premium to be paid for insuring property against loss or damage by fire." To distinguish these from the preceding type of legislation they may be called anti-compact laws. Inasmuch as the regulation of insurance rests entirely with the states, combinations of underwriters are proper subjects for the exercise of state powers. Such laws were held in German Alliance Insurance Co. *v.* Hale[2] to be a valid exercise of the police power; and the state may even expel a foreign company for participation in a pool or combination.[3] It is doubtful whether as much may be said regarding agreements and combinations consummated and conducted outside the state.

In some cases the issue was introduced whether or not state and federal constitutional provisions protecting the right of contract and equal protection and due process of law were contravened by the anti-compact laws. In 1903 the Circuit Court favored an affirmative answer, but its opinion was three years later overruled by the Supreme Court and the constitutionality of the law in question affirmed. The penalizing of an insurance company for membership in a tariff association by requiring it to pay 125 per cent of any loss was by the same court held not to deprive the company of equal protection or due process of law. Equally valid is the deprivation by statute of a company of its contract right to require notice and proof of loss. No devices of the companies were of avail in evading such laws where it was desired to enforce them. Where in one state agents organized a " social club " to insure the writing of policies in accordance with understood standards the court characterized it as " a plain, palpable but bungling pool, trust, agreement, combination, confederation and understanding, organized to avoid said anti-trust statute," and illegal. The same opinion was held of a " stamping department " in Missouri. Only one unreversed state court decision was found which upheld the legality of associations under specific prohibitive laws as compared with the important opposite decisions of the highest courts.

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[1] For the cases involving alleged violation of anti-trust statutes see Fire Underwriters' Associations in the United States, pp 52–69

[2] 21 S C 246 (1911).

[3] See Fire Underwriters' Associations in the United States, pp. 52–69.

The above-mentioned two classes of statutes were superseded in public interest, however, by the state-rating laws. Whereas the earlier enactments had decreed that competition in rates was a desirable status, thus officially countenancing discrimination, the new type of act required an identical charge by all companies but designated the state as the arbiter of insurance premiums. This was the first step, tho apparently a wholly unconscious one, toward a rational treatment of the issue.

Two varieties of such laws — one requiring the filing of rates, and the other providing for the revision of rates found by a hearing to be unfair — are largely important today only as documentary proof of state permission to determine rates coöperatively and as an acknowledgment that competition is undesirable. They exemplify a distinct departure from the former prevailing theory. The Kansas law providing for filing and revision was declared a valid exercise of the police power because "contracts of insurance . . . have greater public consequence than contracts between individuals to do or not to do a particular thing whose effect stops with the individuals."[1] An able dissenting opinion contended that the majority's decision opened the way to general state price-fixing. The third class of state-rating act provides for the original determination of obligatory rates by a state board. This class even more emphatically announces the death of the competitive rate system; all companies are by it bound to a uniform scale of charges.

Another legislative device is the regulatory statute. This leaves with the companies the fixing of rates by their time-tried system, but restricts and corrects its operation by public knowledge and supervision of associations' activities, provision for the hearing of present and elimination of future complaints and the prohibition of improper discriminating acts and arbitrary exercise of power.[2]

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[1] German Alliance Ins Co v. Lewis, 34 Sup. Ct 612.

[2] This type of legislation was recommended by the National Convention of Insurance Commissioners Its principal features are the following (1) The visitation and supervision of rating bureaus by the superintendent of insurance (2) Prohibition of discrimination between risks of essentially the same hazard (3) Requirement that every rating bureau grant membership to any insurer desiring same. (4) Requirement of a written survey of every risk specifically rated (5) Regulation of agreements between insurers with reference to rate-making. (6) Review of rates and removal of discriminations by Insurance Commissioners.

The important conclusion to be drawn from the development of fire insurance underwriters' associations, their prohibition and regulation, is that the clean-cut issue always remains, " Shall rates be determined by competition or coöperation ? " In the former attitude stand the states which enforce anti-combination laws and in support of the latter contention appear those which have passed state-rating and regulatory acts. With a general preponderance toward the latter type of legislation and more modern position, a further refinement of the question is possible. " Shall uniform rates be made through the medium of the state or of the associations ? " On the one hand stand the state-rating acts, on the other the statutes which prescribe regulation. No compromise is possible in this question and the issue must ultimately be squarely decided before intelligent exercise of governmental power is possible in this field.

The argument for the state-rating acts is apparent. They are designed to end certain abuses and the necessity of this is not seriously contested. Enlargement of this theme is unnecessary. The other side of the question is less adequately recognized, involving as it does some knowledge of the insurance business. These associations were the outgrowth of economic necessity and continue to exist because of economic advantages. While the defects previously described are extensively advertised, few writers have troubled to indicate the advantageous features, which are of much greater importance. The state price-fixing theory would absolutely eliminate the association and its good points because of the abuses. But it is contended that state-rating acts are attended by their own evils.[1]

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[1] **Report of New York Legislative Committee, February 1, 1911; Fire Underwriters' Associations in the United States, pp. 52–69.**

The adverse criticisms of these acts, briefly stated, are as follows:

(1) They interfere with freedom of contract with respect to a business of a private nature.
(2) It is unfair for the state to limit premiums unless it guarantees the companies a fair profit.
(3) It is unfair to tax the companies to support a rating system which may prove no more equitable than their present one.
(4) Political influence may exert a power for the benefit of special classes.
(5) Supervision of rates will devolve on those whose only qualification is participation in political activities.
(6) Inequalities present in state and municipal taxation afford a presumption that the fire tax will be inequitably distributed.
(7) Average and distribution are necessary to safe conduct of the business and no rates should be founded on a single state's experience.

The acts providing for regulation, however, do not introduce a new principle of government, capable of indefinite expansion, such as is inherent in the state price-fixing system; they merely endeavor to retain the good of the prevailing system and to reduce its evils. This is in entire accord with the attitude assumed toward railroads, steamship lines and public utilities, which are permitted to freely coöperate under supervision. The experience of New York seems to show that such laws operate effectively. Fire underwriters' associations have been investigated and various improper practices removed. More information is available to the public with regard to New York associations of underwriters than it is possible to obtain in all the other states of the Union combined. Supervision has extended to liability and compensation insurance and even to the minor branches, such as plate glass and burglary protection. Because of reasonableness, practicability and effectiveness every indication is that future development will be toward legislation of this character.

THE METHOD

A brief recital of past efforts to measure fire hazard is necessary as a background for the discussion of the present problem.[1] The earliest insurance schemes of necessity considered all risks on an equal basis; even in 1666 there was only a two-fold division of property according to construction into brick and frame buildings. The early uniformity of treatment and simplicity of classification was primarily due to the fact that industry was largely in the handicraft stage. Steam and machinery hazards, difficult of analysis, were yet to come; the present-day variety of manufacturing and mercantile risks was lacking; business was principally conducted in small shops. The entire lack of analysis of fire hazard is demonstrated by the imposition of rates on the basis of rental values in 1681, and their determination by building valuation in 1690. Further division of risks developed gradually; in 1706 the Union Fire office of London classified them as "common," "hazardous" and "doubly hazardous" and in 1798 the Massachusetts Fire Insurance Company promulgated a six-fold classification depending on construction and the character of roof and walls. A special class was created for buildings containing certain highly hazardous occupations. The New York Salamander Society, comprising eight companies in 1819 and twenty-six in 1826, put forward a classification of contents into " non-hazardous," " hazardous," " extra-hazardous " and " specially hazardous " and in 1820 a building classification comprising eight groups, as follows:

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[1] For a history of fire insurance rating see American School of Correspondence, Cyclopedia of Fire Prevention and Insurance; A. F. Dean, Classified Experience, Chicago, 1912; G. F. Forbush, "Notes on Rates and Rate-making," a lecture before Insurance Library Association of Boston. 1912.

(1) Buildings of brick or stone, covered with tile, slate or metal, doors and windows of solid iron.
(2) Buildings of brick or stone, covered with tile, slate or metal.
(3) Buildings of brick or stone with roofs three-fifths of tile, slate or metal and one-fifth shingles.
(4) Buildings of brick or stone covered with wood.
(5) Buildings of frame filled in with brick, front entirely of brick.
(6) Frame buildings filled with brick.
(7) Frame buildings, hollow walls, with brick front.
(8) Buildings entirely of wood.

It is important to note that as yet there was no analysis of the elements of hazard; progress lay solely in the direction of more extended class subdivisions. Thus no more was charged for a brick building covered with metal occupied as a storehouse for baled cotton than for a similar building filled with chinaware. Exposure, the risk of fire from surroundings, was unnoticed until 1846, as far as can be ascertained. In brief, numerous features of individual risks were of minor consideration, while some one or two features which determined its class were paramount.

This condition could not endure when handicraft production gave way to the steam and machinery era, which brought with it immense factories teeming with workmen, complex processes, varied construction and a confusion of materials. The formation of simple groups distinguished by a few prominent features became increasingly difficult and absurd. Either the classifications must be extended to a degree which then seemed exorbitant to underwriters, or some new system of determining rates devised. For a time individual judgment adapted the rates to existent conditions through the medium of inspectors. But the judgment of different inspectors would vary and no evidence of the justice of rates could ever be furnished to legislators or the public. Important factors in the estimation of some inspectors were insignificant to others; even the same inspector would not arrive at identical rates on the same risk at different times. It is a high tribute to those influential in establishing rates under this system that no widespread cry of corruption was ever heard.

The individual judgment system was superseded by a system based on combined judgment, a transition which was greatly facilitated by the associations heretofore described.[1] This system is now universally known as the " schedule " system, from its list of charges for elements of hazard and credits for elements of safety. Since no classified data of any practical value was available for the determination of the amounts of charges and credits, for particular features of construction, occupancy, and exposure, it was necessary to establish them by the experience and judgment of many able underwriters.[2] Schedules promulgated by the National

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[1] C. A. Hexamer, "Rates and Schedule Rating," Annals of American Academy, September, 1905, p. 212. Report of Pennsylvania Legislative Commission, 1915, p. 26.

[2] The Universal Mercantile Schedule, by F. C. Moore, Continental Insurance Co., N.Y., 1902, p. 5. This contains a complete description of the Universal System. A more elementary and understandable description of its principles is given in S. Huebner's Property Insurance, chap. 17.

Board of Fire Underwriters were the earliest in use, but their "analysis was simple and the parts few." The first pretentious schedule of wide usage in the United States was the Universal Mercantile Schedule, still extensively used in modified form.[1]

The Universal Mercantile Schedule starts from a basis rate of twenty-five cents per $100 of insurance on a standard building in a standard city. If a given city is above the standard prescribed the basis rate will be lower than this; if below the standard, higher. Charges and credits having been given for the features of a particular city, the rate for a standard building in the given city or "key rate" remains, from which the rate for a given building in this city emanates. This is arrived at by a consideration of the construction, occupancy, and exposure of the given risk. Construction includes the features of walls, roof, floors, ceilings, area, height, elevators, stairways, skylights, cornices, lighting, heating, pillars and columns, chimneys, and the like. One thousand distinct classes of occupancy are listed, for which charges are assessed ranging from five cents on stocks of retail clothing, to $6.00 for the manufacturing of fire works. Exposure is allowed for by considering the relation of the building under consideration to adjacent buildings.

The Universal Schedule was an attempt, it is evident, to substitute a consensus of opinion for individual estimates of the gravity of hazards. The necessity for this had become apparent. The chairman of the schedule committee as a test selected five experts on warehouse merchandise and obtained from each two ratings at an interval of three months on various classes. The same expert's two ratings differed sometimes by as much as $1.00 per hundred dollars of insurance.[2] In the words of Mr. F. C. Moore, "In view of the fact that no one company, and certainly no one underwriter, can claim to have sufficient experience or knowledge for rating all classes of risks, it will not be denied that, in a business where an adequate price is so absolutely essential not merely to profit, but to solvency, rates should be fixed after a wide canvass to secure combined judgment."[1]

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[1] See note 2, p. 722.

[2] The Universal Mercantile Schedule, p. 136.

It is also unfortunately true that no statistical proof of the correctness of the rate on a particular building was existent under such a system; some claimed such proof to be unobtainable. Fire insurance experts therefore developed the theory that it would be unnecessary to justify charges and credits for particular features if a schedule could be devised, all parts of which bore a correct relation to each other, and the aggregate result of which was merely a fair profit to the companies. This, in brief, is the germ of the Dean or Analytic System.[2] The followers of this later idea even held it to be a mistake to attempt to say that ten cents should be added, for example, for a party wall less than twelve inches thick; they would instead add and deduct throughout certain percentages of the basis rate. All measurements were to be purely relative, was the primary hypothesis, and afford nothing but ratios.[3] These relations were considered the only permanent factors in the rating problem and the relations between components of hazard should always be expressed, therefore, in the form of a proportion. The first object in rating is to ascertain whether the charges for the components of hazard are in true relation. As stated by the author of the Analytic Schedule: "We might call the relation of each part of hazard to every other part a body of primary relations, of each risk to every other risk a body of secondary relations, and the relation of every property class to every other class a body of tertiary relations, but the primary relations really create the secondary and tertiary relations without any concern on our part."[1] As an illustration the following simplified figures[2] may be used:

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[1] Moore, F C, Universal Mercantile Schedule, N. Y., 1902, p 133

[2] The best description of the Analytic System is found in H M Hess, Philosophy and Operation of the Dean System, the Author, St Louis, Mo See also E. R Hardy, Fire Insurance, Modern Business Series, vol viii, p 148, Alexander Hamilton Institute

[3] Dean, A F, Fire Hazard, Is it Measurable?, Committee on Publicity and Education, 171 La Salle St., Chicago, 1910

	Year A On $1000 of Insurance	Year B On $1000 Insurance
Claims and expenses	$9.50	$12.00
Profit (assumed to be a fair profit)	.50	.50
Total	$10.00	$12.50

The correct rate would be per $100 insurance:

Basis rate	$ .80	$1.01
Construction, add 10 per cent of basis rate	.08	add .10
Occupancy, 10% of basis rate	.08	add .10
Exposure, add	.04	add .04
Total	$1.00[3]	$1.25[3]

Secondly, it was said, let us by experience adjust our basis rate to the point where a fair profit will be yielded. If aggregate results show only a fair profit and all related factors in the problem are correctly compared the charges and credits for each of the latter must necessarily be equitable. In brief, the underwriter was supposed to adjust his basis rate so as to collect an adequate and just amount from the policyholders.[4] The words of an eminent pragmatist might be taken as clearly defining the intent of the Analytic System: "Our only test of probable truth is what works best, in the way of leading us, what fits every part of life best and combines with the collectivity of experience's demands, nothing being omitted." [1]

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[1] A F Dean, Fire Insurance Classifications, Committee on Publicity and Education, 171 La Salle St , Chicago, 1910

[2] These figures are purely assumed. There is no assumption to be made, for instance, that construction and exposure are of equal weight

[3] Which is just sufficient to yield fifty cents profit.

[4] H. M. Hess, Philosophy and Operation of the Dean System, the Author, St. Louis, Mo.

The Analytic System was adopted in the Middle West, while the Universal continued to be applied in the East in modified form. The ever-present difficulty again presented itself, however, in connection with the former as with the latter — that the statistical proof necessary for public conviction of the correctness of the relations established between hazards could not be furnished. To quote its author, ". . . statistics can never give us the slightest clue as to the adequacy of these charges or credits. The causes of most fires cannot be ascertained. . . . An instant's thought will show that we are forever precluded from obtaining through classified statistics the contribution of such factors as area, height, wall thickness, floorway openings . . . or any other of the features of hazard enumerated in a modern tariff." [2]

Consequently, in 1914, at the insistent request of the insurance commissioners of various states the National Board of Fire Underwriters appointed a committee to consider the advisability of attempting a practical solution of the old classification problem. One result was the recommendation and acceptance of an occupancy hazard classification and a standard blank form for loss reports; another the establishment of a new National Board department, the Actuarial Bureau.[3] The latter is now engaged in gathering statistics to be tabulated for the ascertainment of fire loss costs and in addition has the difficult duties of investigating the causes and prevention of fire, of keeping record of loss claimants and of furnishing data to states desiring it. Any company may become a subscriber to the Actuarial Bureau, which is supported by an assessment of 1/50 of one per cent of the members' gross premiums.[1]

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[1] Quoted from James's Pragmatism, p. 80, by A. F. Dean, in Fire Insurance Classifications, p. 35.

[2] Dean, A. F., Fire Hazard: Is it Measurable ?, p. 20; E G. Richards, Classification-Discrimination, address before Insurance Society of New York, February 25, 1913.

[3] Resolutions adopted by the National Board of Fire Underwriters at Special Meeting, October 29, 1914.

No less important was the indirect result that the preparation of the now complete " Experience Grading and Rating Schedule " began.[2] Unlike the schedules so far discussed this purposes a return to the classification theory as a basis for fire rates, and is the first designed to rest upon analyzed experience. It is adapted for use with the statistics now being prepared by the National Board Actuarial Bureau.

The E. G. R. schedule method is a gradual refinement of experience into smaller and smaller units, beginning with a division of the United States into state averages and ending with a grading of buildings or contents according to quality. Thus the ratio of losses, expenses and a fair profit [3] to the insurance written over the entire United States is 1.125 per cent. Geographically dividing the United States similar average ratios are obtained for the several states,[4] that of New York being, for example, .751 per cent [5] and the rate for a particular risk in New York state being 751/1125ths of the average United States' rate on the same kind of a risk. The average United States' rates on various hazards must be determined therefore.

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[1] Resolutions adopted by the National Board of Fire Underwriters at Special Meeting, October 29, 1914.

[2] E. G. Richards, Experience Grading and Rating Schedule, National Board of Fire Underwriters, New York, 1915.

[3] Five per cent assumed a fair profit. Underwriting experience 1903–12 used to ascertain losses and expenses.

[4] Losses were obtained from reports to the state authorities, expenses from the records of a few companies which have for years so segregated their expenses. Segregation is important because of the difference in state requirements, restrictions and taxation.

[5] Unusual conflagration losses apportioned between all states. Thus California's average loss cost would be 2.327 if it bore the total conflagration loss itself but is figured as only .716 per cent after the San Francisco conflagration is apportioned among all states.

The classification of fire hazard is into three divisions; inherent hazard, external exposure and internal exposure. The inherent hazard is dependent upon two factors, the nature of the building and the nature of its contents. Thus the inherent hazard of a building risk is determined from its own construction and the nature of its contents. The inherent hazard of a contents risk is found, likewise, from its own nature and the character of the building in which it is situated. But damage by fire may originate from two other sources, namely, from other occupancies in the same building and from other buildings nearby. The hazard of loss which buildings or their contents are liable to sustain from surrounding hazards outside of the exposed buildings is designated the " external exposure " and the risk of fire from tenant occupancy in the same building as the exposed risk is called " internal exposure." In arriving at a rate on a risk the cost of inherent hazard, of external exposure and internal exposure are separately calculated. Combined they give the fire cost of inherent hazard, external and internal exposure, on a given risk, not considering expense.

With the statistics now being prepared by the National Board Actuarial Bureau available, all towns will be divided into ten classes according to public fire protection. The losses and writings are to be divided according to the grade of town and then to be subclassified according to inherent hazard into four hundred and thirty classes, each of these being sub-divided into (1) building risks and (2) contents risks. The National Board has prepared a table for the classification of risks in this manner, building risks being designated by odd numbers and contents risks by even numbers, as for example: No. 137, a *building* containing wholesale groceries and No. 138, *wholesale groceries* contained in a building.[1]

Both building risks and contents risks are then divided into three sub-groups, according to whether the hazard be a fireproof, brick or frame building, and each of these three types reclassified as of ten grades of quality. We have, therefore, thirty quality grades of building risks and thirty quality grades of contents risks. Each of these thirty grades must now be sub-divided, the building risk grades each into ten grades according to quality of contents and the contents risk grades each into ten grades according to quality of building. The inherent hazard on any risk, in short, is to be determined by two factors, the type and quality of construction and the nature and quality of the occupancy.

All losses resulting from external exposure are now to be considered in connection with all grades of external exposure, and a similar refinement of experience made, with one exception — the sub-division into occupancy classes is unnecessary. Internal exposure is treated in the same manner.[2] The sum of the costs of inherent hazard, external exposure and internal exposure gives the insurance cost of the risk in question. To this must be added expense and profit. The following is an outline of the proposed division and sub-division of tabulated experience.

This system is the first which attempts the measurement of fire hazard by actual tabulated experience. It will be noted that it avoids the use of any state averages,

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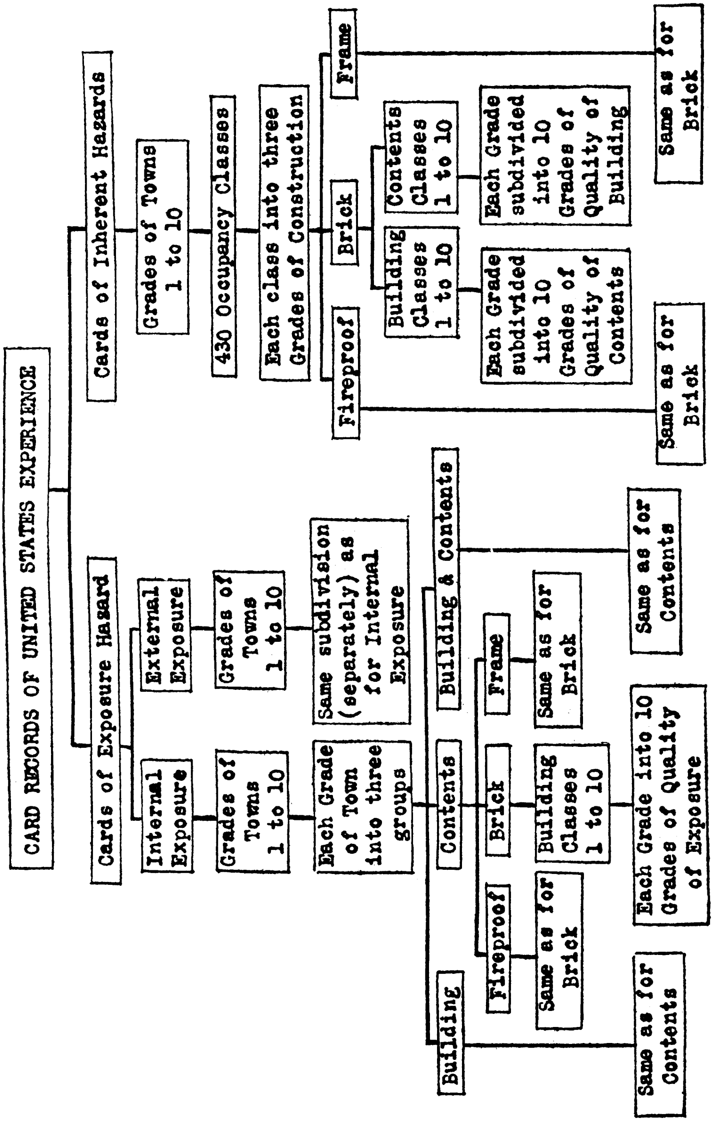
[1] Standard Classification of the National Board, which has been endorsed by the National Convention of Insurance Commissioners.

[2] E. G. Richards, Experience Grading and Rating Schedule, pp. 38, 39.


CARD RECORDS OF UNITED STATES EXPERIENCE
Cards of Exposure Hazard
Cards of Inherent Hazards
Internal Exposure
External Exposure
Grades of Towns 1 to 10
Grades of Towns 1 to 10
Grades of Towns 1 to 10
430 Occupancy Classes
Each Grade of Town into three groups
Same subdivision (separately) as for Internal Exposure
Each class into three Grades of Construction
Building
Contents
Building & Contents
Fireproof
Brick
Frame
Building Classes 1 to 10
Contents Classes 1 to 10
Fireproof
Brick
Frame
Same as for Brick
Building Classes 1 to 10
Same as for Brick
Each Grade subdivided into 10 Grades of Quality of Contents
Each Grade subdivided into 10 Grades of Quality of Building
Same as for Contents
Each Grade into 10 Grades of Quality of Exposure
Same as for Contents
Same as for Brick
Same as for Brick

since distribution is an essential principle of insurance and no single state's experience gives a dependable average. To adjust a rate as found by the process above to a risk located in any particular state, that proportion of the rate would be taken which the state's loss and expense ratio bore to the United States ratio. Thus in New York all risks would pay 751/1125ths[1] of the average rate for the United States. This simple averaging device removes one of the principal objections directed against the use of classified statistics as a foundation for rate-building.

The question to be decided in the near future is whether premiums upon a judgment basis modified by experience shall continue or rates become mirrors reflecting the exact picture of the results painted by classified statistics. The answer will depend entirely upon whether the National Board tabulations and the E. G. R. Schedule surmount the many objections which have always prevented the re-adoption of the classification theory by underwriters.

It has been contended that true classification is the grouping of phenomena similar in essential respects, or rather whose differences are so small as to be imperceptible. In a classification for fire insurance rate-making the essential factor is quantity of hazard and groupings should be dependent upon this. But so diverse and multitudinous are the elements of fire hazard that it has been considered impossible to obtain sufficient like risks to form a valid class. The hazard of one risk is composed of many important factors absent in others and the better risk will demur when common experience is made the basis for determining an average rate.[2] Those who have most adequately presented this consideration, however, admit that all classification must end somewhere, that ultimately an arbitrary limit must be put to sub-division. While a classification of many risks as "dry goods" occupancies is incomplete and invalid in practice, when the E. G. R. Schedule sub-divides classes into ten grades of quality it may be reasonably doubted whether this is not a sufficient extension of analysis. In life insurance, for instance, it is found sufficient to divide risks into normal and impaired without comparing hearts, lungs and stomachs in various degrees of health. A reasonably correct rate arrived at in this manner is certainly preferable to a "scientifically" computed rate of whose correctness no proof can be adduced, from the standpoint of the public. Furthermore, the analysis and sub-grouping of risks is only limited by the necessity of retaining distribution and if desirable, twenty grades of quality may be standardized.

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[1] See p. 728, above.

[2] A. F Dean, Fire Insurance Classifications, p. 10; A. F. Dean, Classified Experience, p. 33.

Another long-standing problem of classification has been the difficulty of providing for "omnibus buildings" comprising many occupancies and conglomerate hazards.[1] It has been difficult to devise any method of determining the appropriate group in which to place such risks. The E. G. R. Schedule, however, treats each occupancy of a building as an inherent exposure of every other in the same building. The statistics of writings showing internal exposure gradings would be sorted from the aggregate statistics and compared with losses from internal exposure. After a sub-division into final units of hazard the loss-costs of each group would be determined.[2] The similar claim that it would be impossible to satisfactorily group many risks which would accordingly fall into a nondescript "miscellaneous" class[1] could seemingly be easily overcome by simply not falling into the error indicated and never creating a miscellaneous group, or rigidly restricting it.

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[1] A. F. Dean, Classified Experience, pp. 14, 15.

[2] E. G. Richards, Experience Grading and Rating Schedule, p. 39.

Two other objections put forward by opponents of classification purely refer to methods of administration. One was that all previous figures were collected by many companies, each with its own individual definitions of various classes and that the aggregates of such groups were meaningless.[2] It will be noted, however, that the proposed system does not intend to make use of old figures but is to rest on the statistics being centrally collected by the National Board.[3] Secondly, the danger of risks being erroneously classified is deplored.[4] This is simply a practical difficulty to be surmounted by appropriate methods of checking.

Classification lists formerly existed for the purpose of comparing premium income and losses to arrive at profits or losses on specific classes. It is represented that not only losses but rates vary, that both losses and premiums are inconstant. With two independent variables differences in results are attributable to either and conclusions are often fallacious.[5] The proposed system proposes no comparison of losses and income. It is designed that a ratio of losses and amount of insurance written be adopted as a basis. Thus the difficulty stated is not applicable to this system.

A more fundamental consideration is that in most businesses, while a one-price system is attempted, no endeavor to extract a uniform profit on all classes of goods is made. It is said that the latter is just as impracticable and unnecessary in fire insurance.[1] This argument ignores the fundamental nature of fire insurance, which is mutuality and public service. Most businesses are considered of a private nature, conducted solely to produce the greatest possible profits for the promoters. These are not supposed to base prices on cost nor to make a uniform profit. But the principle that the price of fire insurance, practically a public necessity, should be based on cost, has of late years seldom been denied. A cost-basis of price-fixing involves uniform profits when carried to its logical conclusion.

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[1] A. F. Dean, Fire Insurance Classifications, p. 13.

[2] Ibid , p 18, and E. G Richards' Classification-Discrimination, p. 13

[3] Mr. E G. Richards clearly demonstrated in 1913, by actual illustrations the inefficacy of prevalent classifications as bases for rates See Classification-Discrimination, p 15 et seq

[4] A. F. Dean, Fire Insurance Classifications, pp. 18, 19

[5] Ibid., p. 19.

Finally, an eminent underwriter in 1910 [2] asked three important questions of the advocates of experience rating. (1) What would you do in regard to the states with valued policy or anti-co-insurance laws ? In reply to this it may be stated that the valued policy law, providing that the face of the policy is to be paid in case of total loss, irrespective of present value, is an outgrowth of hostility toward insurance companies who could not justify some of their practices, and must ultimately disappear. The co-insurance principle, that losses should be paid in the proportion that the insurance carried bears to the insurance required, would not be of importance, as far as rate-making is concerned, under the proposed system, because rates would be based upon the ratio of losses and expenses to insurance carried. In states where co-insurance was prohibited this ratio would be greater and charges correspondingly increased. (2) What would you do with a large city conflagration in any single state ? This is cared for by taking conflagration losses out of any single state's average and apportioning them among all states.[3]

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[1] A F. Dean, Fire Insurance Classifications, p. 23, Classified Experience, p. 35 et seq.

[2] Ibid, p. 38.

[3] See p. 728, above.

(3) What would you do in states where the laws forbid the common use of any tariff ? This status must have had a cause; the early portion of this paper showed this cause to have been dissatisfaction with company rate-making. The new schedule is designed to remove this dissatisfaction and with it will disappear the opposition to uniform rates coöperatively made.

In brief the E. G. R. Schedule is based upon a theory of measurement of hazard by statistical results while the Analytic and Universal Mercantile systems were elaborate and carefully designed applications of the combined judgment theory The former is inevitably superior to the latter two if capable of overcoming certain technical difficulties. It maintains the principle of average and distribution, a necessity in fire insurance deemed impossible under the classification method and yet embodies the idea of statistical justification of rates.

CONCLUSION

It is apparent from the preceding that the present system of rate-making in fire insurance was evolved by the development of early crude methods, and that economic conditions compelled the establishment of coöperative associations. Regardless of their functions criticism and distrust were aroused by the unwise exercise of power. After numerous foolish and dangerous attempts to regulate the tariff associations, the regulatory statute and the state-rating act appeared as proposed solutions of the problem of establishing a medium for promulgating fire rates. The prominence of these enactments at the present time and their tendency to supersede other legislation force the choice of rating by state-supervised underwriters' associations or bureaus or through the medium of state officials.

The growth of popularity of the former method is shown by its adoption in six states prior to 1915 and in six more during the past year.[1] Which method will finally be universally adopted yet remains to be decided.

It has also been shown that rating theories developed from classification to individual judgment and thence to combined judgment. The combined judgment theory reached its final stage in the Universal Mercantile and Analytic Schedules or modifications of them but it was evident that dissatisfaction must co-exist with any rate-making system which could not be justified by statistics. Underwriters were compelled to attempt a schedule dependent on tabulated experience and the E. G. R. System seems to be a reasonably successful attempt to embody this principle. In the field of rating theory the important question is " Will the companies endeavor to continue past methods of measuring hazard or will they coöperate in the support of a new system intended to furnish the public with the proof of equitableness which it demands ? " Every indication is that the latter is one of the great imminent developments of fire insurance.

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[1] The states which passed laws prior to January 1, 1915, giving the insurance departments power to examine and supervise rating bureaus and associations, were New York, New Jersey, West Virginia, Washington, Kentucky and North Carolina Subsequent to this date such acts were passed in Pennsylvania, Michigan, Minnesota, Iowa, Missouri and Oklahoma.